

Osmotic pressure in the potato.—In an effort to throw some light on the physiological basis of tip-burn, LUTMAN⁷ has studied the osmotic pressure of the potato plant throughout a growing season. In the young plant, when the foliage is being formed, the osmotic pressure of the leaves is greater than that of the stems. After the flower buds are formed and the tubers begin to grow, the stalks predominate over the leaves in osmotic pressure. Sugars account for the high pressures of the stalks. Tip-burn begins to appear at this stage. This higher osmotic pressure of the stalks is maintained during the hot weather of July and August. With the coming of cool rainy weather in September and the resumption of growth of the foliage, the leaves again gain the ascendancy. As the plant dies the osmotic pressure decreases, the soluble materials being largely transported to the tubers. The osmotic pressure of the growing tubers is always lower than that of the stems and leaves, although above that of the roots. The study does not explain tip-burn, although the author sees two possible explanations of it: (1) the loss of water from the leaves to the stems, due to the higher osmotic pressure of the latter; and (2) the lack of nourishment of the leaves, due to the translocation of food materials from the leaves to the tubers. The author draws some other theoretical and practical conclusions from his data.—S. V. EATON.

Anatomy of prairie plants.—Selecting the dominant species from some prairie associations, Miss HAYDEN⁸ has studied their leaf structure and presented considerable data, the most valuable being in the form of plates from drawings of cross-sections. She concludes that prairie plants show a xerophytic tendency in their leaf structure in the form of specialized palisade tissue, thick-walled epidermis, the presence of water-storing tissue, and sometimes of trichomes.

In studying the subterranean parts of plants from the same habitats, including a larger number from swampy areas, the same author⁹ again presents many data in the form of drawings. Her principal conclusions are that in a dry habitat there is a tendency to the production of prominent mechanical tissue and reduction of parenchymatous tissue. In moist habitats, however, parenchymatous tissue is well developed and aerenchyma is abundant in swamp plants. The subterranean stem is predominant in moist lowland regions, and is more efficient than roots in propagation.—GEO. D. FULLER.

⁷ LUTMAN, B. F., Osmotic pressures in the potato plant at various stages of growth. *Amer. Jour. Bot.* 6:181-202. *figs.* 2. 1919.

⁸ HAYDEN, ADA, The ecological foliar anatomy of some plants of a prairie province in central Iowa. *Amer. Jour. Bot.* 6:69-85. *pls.* 10-14. 1919.

⁹ ———, The ecological subterranean anatomy of some plants of a prairie province in central Iowa. *Amer. Jour. Bot.* 6:87-105. *pls.* 15-28. 1919.